Spillage Test Procedure

Current Procedure

Calibration at each fueling location

Three trials at each of 1, 5 and 25 ml

Ignores spills less than 1 ml in size

New Procedure

One calibration per facility

Three trials at 1, 2, 3, 4, 5, 10, 25 and 50 ml

All spills of 1 drop or more included

“Dripless” Nozzles

No more than 1 drop per fueling.

Proposed Test Methodology

- Customer asked if fueling is to be a fill-up
- If yes, CARB staff requests to fuel vehicle
- Fueling is at high clip or, if no clip, fully open
- When nozzle shuts off, wait (timed) 5 secs.
- Remove nozzle from fillpipe
- Away from car, point nozzle downward
- Observe and record drips

Spillage, Liquid Retention, and “Dripless” Nozzles

Concern About the Magnitude of the Emissions from these Sources

- **14.2** Billion Gallons per Year in California
- **6.24** pounds per gallon of gasoline
- **20** drops = **1** ml
- **3785** ml = **1** gallon

1 drop/10 gal fueling = **58.4 TPY** in CA

Spillage, Liquid Retention, and “Dripless” Nozzles

Dripless Nozzles: 1 drop / fueling
= 58.4 TPY

Liquid Retention: 100 ml / 1,000 gals.
= 1ml / 10 gals
=1080 TPY = 2.96 TPD

Nozzle “Spitting” ≤ 1ml / nozzle / fueling

Spillage: 0.42 lbs /1,000 gals
= 11.9 TPD

Proposed Revisions to the Certification Procedure

- ✦More Stringent Standards and Specifications
- ✦Operational Test of at Least 180 Days
- ✦Efficiency Test on 200 Vehicles
- ✦Limits on Emissions from Processors (CO, NOx and HAPS)
- ✦Limited Term Certifications

Performance Standards and Performance Specifications

- Evidence of compliance with the standards and specifications shall be provided in the application for certification, along with the results of tests demonstrating compliance.
- The system shall demonstrate ongoing compliance with all applicable standards and specifications throughout certification testing.
- Systems and components shall comply with all performance standards and specifications throughout the warranty period.

Performance Standards and Specifications Tables

- ✦Table 3-1 Phase I Systems
- ✦Table 4-1 All Phase II Systems
- ✦Table 5-1 Additional - Balance Systems
- ✦Table 6-1 Additional - All Assist Systems
- ✦Table 7-1 Additional - Common Collection Unit
- ✦Table 8-1 Additional - Destructive Processor
- ✦Table 8-2 Additional - Non-Destructive Processor

Performance Standards and Specifications Tables

- More than One Table Will Apply
- Examples:
  - Balance: Tables 3-1, 4-1, 5-1
  - Dispenser-based Systems (Gilbarco, Wayne, etc): Tables 3-1, 4-1, 6-1
  - Central Vacuum Systems:

    Healy: Tables 3-1, 4-1, 6-1, 7-1

    Hirt/Hasstech: Tables: all except 5-1, 8-2

All Phase I Systems

- ✦Phase I Efficiency ≥ 98%
- ✦Emission Factor HC ≤ 0.17 #/1000 gals
- ✦Product Adaptor Rotatable 360º or equivalent
- ✦Drop tube with
  Overfill Protection ≤ 0.17 CFH at 2.0 ” wc
- ✦Vapor Adaptor ≤ 0.17 CFH at 2.0 ” wc
  Rotatable 360º or equivalent
  Poppeted
- ✦Criteria for Pressure/Vacuum Vent Valves

All Phase II Systems

- ✦Emission Factor HC ≤ 0.42 #/1,000 gals
- ✦“Dripless” Nozzles ≤ 1 drop per fueling
- ✦Spillage ≤ 0.42 #/1,000 gals
  (including drips from spout)
- ✦Liquid Retention ≤ 100 ml/1,000 gals
- ✦More Stringent Component Integrity
- ✦Compatible with ORVR-equipped vehicles
- ✦Compatible with Phase I systems

All Phase II Systems
UST Pressure

- **Balance** $\leq$ 0.00 ” H_2O for Minimum of 16 hr/day
  $\leq$ 0.25 ” H_2O Ave. of Positive Pressure
  Maximum of 1.5 ” H_2O for 1 hour/day
- **Assist** Negative Pressure Maintained
  -0.25 ” $H_2O \geq P \geq$ -4.5 ” H_2O
- **Innovative -** System does not comply with an identified Standard or Specification, but can meet intent of the requirement in another way.

In-Station Diagnostics (ISD)

- Shall activate visible and audible alarms, and/or prohibit dispensing, in response to certain failures, and shall monitor and create a record of performance for the last 12 months.
- Parameters to be monitored:
  - UST Pressure
  - Balance System Vapor Return Line (no blockage)
  - Assist System Air to Liquid (A/L) Ratio, or equivalent
  - Processor function

Questions?